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566,270 COMPLETE SPECIFICATION

1 SHEET

Fig. 1.

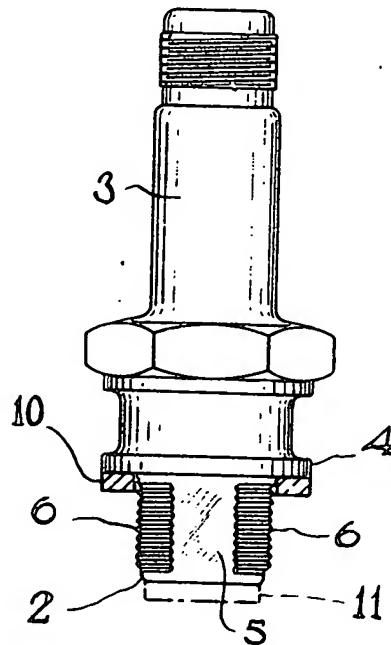


Fig. 2.

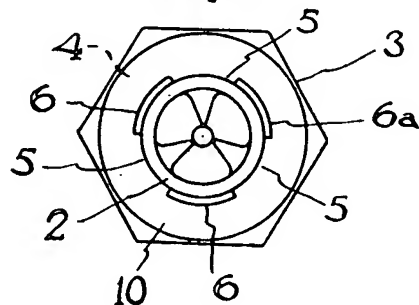


Fig. 3.

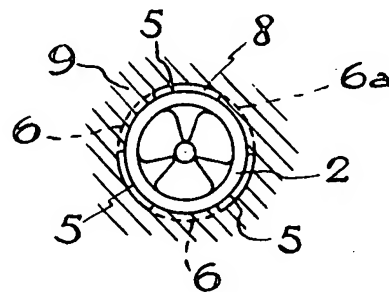


Fig. 4.

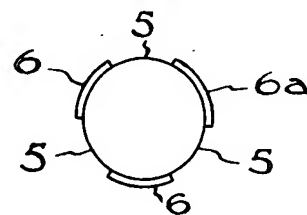


Fig. 5.

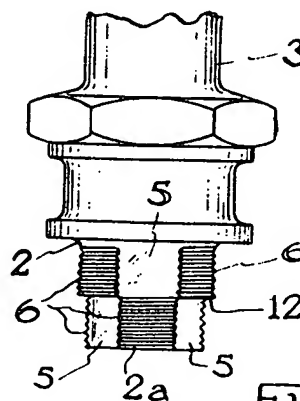


Fig. 6.

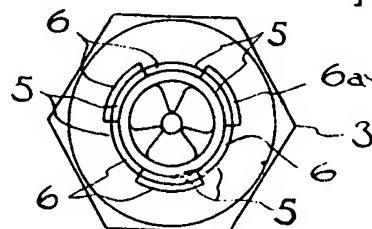


Fig. 7.

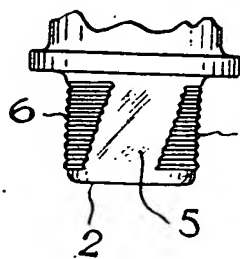
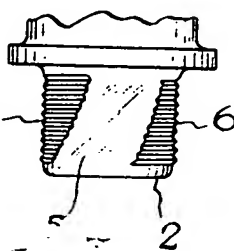


Fig. 8.



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[This Drawing is a reproduction of the Original on a reduced scale.]

PATENT SPECIFICATION

566,270



Application Date: July, 27, 1944.

No. 12219/43.

Complete Specification Accepted: Dec. 20, 1944.

COMPLETE SPECIFICATION

Improvements in or relating to Sparking Plugs

I, NELLIE HOLMES, of 157, Wibsey Park Avenue, Bradford, in the County of York, a British Subject, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to sparking plugs and is particularly directed towards the fitting of such plugs in their operative position.

Sparking plugs are invariably furnished with a screw threaded lower end usually about half an inch or more in length which enables them to be screwed into the cylinder head or wall. In view of this, several complete turns are required to insert and/or remove a standard type of plug and thus, particularly where plugs are often changed or cleaned, a considerable amount of time is wasted in this operation. To overcome this it has been proposed to provide a sparking plug, having a thimble pole or electrode and removable insulator carrying a central electrode, with an interrupted external screw thread for engagement with a corresponding thread in the cylinder.

According to the present invention a sparking plug is furnished with screw threads at its lower end which are interrupted in such a manner that the plug can only be inserted when in one predetermined position into a co-active hole by means of a simple thrusting movement accompanied by a slight turn about its axis in that order for insertion and the reverse for a removal operation.

The plug may be provided with screw threads which are interrupted by recesses cutting through them. A hole into which the plug is to be fitted is similarly threaded and shaped.

Moreover, whilst it is preferred to make the screw threaded part of the plug of one diameter throughout it may be tapered and/or stepped. The recesses which interrupt the threads may not extend continuously through the latter but be staggered with sections of screw threads so that when a plug is inserted axially the predetermined distance the lower screw threads will clear the upper threads in the

hole to pass into their own recesses to become locked by the threads when the plug is turned.

Referring now to the accompanying drawing in which several embodiments are shown by way of example only.

Figs. 1 and 2 are respectively a side view and a plan from below of an improved plug;

Fig. 3 is a plan of a plug in position;

Fig. 4 is a diagrammatic plan view of the plug end;

Figs. 5 and 6 are respectively a part side view and a plan from below of a plug with a stepped end;

Fig. 7 is a side view of a plug end with angular recesses through its screw threads;

Fig. 8 is a side view of a plug end with curved recesses through its screw threads.

In the embodiment shown in Figs. 1 to 3, the lower end 2 of a plug 3 is screw threaded up to the usual shoulder or flange 4 but three straight recesses 5 are arranged to cut through the threads so as to interrupt them and divide them off into separate sections 6, 6a. The section 6a is larger than the other two sections 6 whilst the recesses 5 are of a width equal to that of the threaded sections 6 and of a depth sufficient to pass similar screw threaded sections 7 protruding from the walls of a hole 8 in a cylinder head or wall 9 (or other part) adapted to receive the plug. It will be seen a plug and the hole to receive it are made co-active, and in either or both cases the recesses may be formed after the screw threads, or prior to the screw threading operation.

The above plug can be mounted in position with a suitable packing washer 10 between the plug shoulder 4 and the bedding down face to make a gas-tight joint.

Alternatively, the lower end of the plug may have a packing washer 11 between it and a shoulder within, or at the bottom of, the hole. The washer 11 may be used instead of, or additional to, the top washer 10 and be loose or carried by the plug. The plug is simply thrust axially into the co-active hole 8 and turned an angle of slightly less than 60° until locked firmly.

[Price 1/-]

If desired the plug end 2 may be tapered.

The above construction is such that, as shown diagrammatically in Fig. 4, by making one section 6a (or recess 5) larger than the other two, the plug cannot be fitted incorrectly, and can only be fitted when in one predetermined position.

In the modification shown in Figs. 5 and 6, a plug is stepped with interrupted screw threads on each stepped part 2, 2a. With this construction the recesses 5 and screwed sections 6 (with a section 6a on part 2) are staggered in relation to one another in the stepped parts, i.e., recesses 5 in the lower step 2a are in vertical alignment with screwed sections 6, in the upper step 2 and the hole to receive the plug made co-active. When inserting the plug (it will be thrust axially into the hole and turned to lock it by means of the screw threads as before) it will be seen that as the lower screw threads are of less diameter than the upper ones they will pass readily down to enter their own recesses. The lower step may or may not be tapered to clear the upper screw threads. Packing washers may be arranged as above described and/or located at the shoulder 12 formed between the stepped parts.

The invention may be modified in a variety of ways without departing from the scope thereof. For example, the edges of the aforesaid recesses 5 need not be parallel with the axis of the plug, but be at an angle thereto as shown in Fig. 7, or even curved as shown in Fig. 8, with a corresponding slight rotation when thrusting a plug axially into position. Furthermore, the number of recesses 5 may be varied as desired.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A sparking plug furnished with screw threads at its lower end which are interrupted in such a manner that the plug can only be inserted when in one predetermined position into a co-active hole by mainly a simple thrusting movement

accompanied by a slight turn about its axis in that order for insertion and the reverse for a removal operation.

2. A sparking plug according to claim 1, provided with screw threads which are interrupted by recesses cutting through them, characterised by at least one recess or screw threaded section being of a different size to any other recess or section.

3. A sparking plug according to claim 1 or 2, in combination with a hole similarly shaped and threaded to receive the plug end.

4. A sparking plug according to any of the preceding claims, wherein two or more recesses are formed in the plug end parallel with the axis of the plug to divide the screw threads into sections.

5. A sparking plug according to any of the preceding claims 1 to 3, wherein two or more recesses are formed in the plug end with their edges at an angle to the axis of the plug.

6. A sparking plug according to any of the preceding claims 1 to 3, wherein two or more recesses are formed in the plug end with their edges curved in their length.

7. A sparking plug according to claim 1 or 2, wherein the plug end is stepped and furnished with alternate recesses and screw threaded sections in its length and around its periphery.

8. A sparking plug according to any of the preceding claims, characterised by the plug end or a portion thereof being tapered.

9. A sparking plug according to any of the preceding claims, having a sealing washer attached to its lower end.

10. A sparking plug arranged, constructed and adapted to be fitted substantially as described with reference to the accompanying drawing.

Dated this 25th day of July, 1944.
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